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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,289	08/12/2005	Ruediger Halfmann	1454.1596	6374

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EXAMINER	
GUZMAN, APRIL S	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/524,289	HALFMANN ET AL.	
	Examiner	Art Unit	
	April S. Guzman	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-33,36 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15,16,33,36 and 37* is/are rejected.

7)☒ Claim(s) *17-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02/11/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/11/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement submitted on February 11, 2005 has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-16, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kashiwagi et al. (U.S. Patent Application Publication # 204/0242276 A1)** in view of **Velazquez et al. (U.S. Patent Application Publication # 2001/0003443 A1)**.

Consider **claim 15**, Kashiwagi et al. disclose a method for operating a radio system with stations (communication means for connecting the concerned radio base station with a radio base station other than the concerned base station) (see claim 9), including a first emitting station (radio base station), comprising

providing for transmission of data (antenna for transmitting or receiving radio waves) from the first emitting station (radio base station) to a first receiving station (radio terminal) in a first spatial radio area (setting a communication area of the concerned radio base station on the basis of the detected radio wave state) (see claim 9); and

broadcasting first direction information revealing a first spatial direction in which the first emitting station provides for the transmission of data (a controller for changing the directivity of said antenna, detecting a state of radio waves transmitted by the other

radio base station, and setting a communication area and positional information of the concerned base station on the basis of said radio waves state, wherein the concerned base station informs the other base station of the positional information of the concerned base station) (see claim 9).

However, Kashiwagi et al. fail to disclose a first emitting station equipped with a first directional antenna and providing for transmission of data from the first emitting station to a first receiving station using the first directional antenna.

In the related art, Velazquez et al. disclose a cellular communication system comprising a base transceiver having a directional base antenna, a mobile transceiver having a directional mobile antenna, a communication link between the base and mobile transceivers formed by a wireless signal between the antennas and a positioning system for detecting the geographical position of the mobile antenna, the position of the mobile antenna being communicated to the base transceiver over the communication link (see claim 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Velazquez et al. into the teachings of Kashiwagi et al. for the purpose of forming narrow antenna beams to and from desired users and way from undesired users to reduce co-channel interference.

Consider **claim 16, as applied to claim 15 above,** Kashiwagi et al. as modified by Velazquez et al. further teaches wherein said communication means receives the positional information of the other radio base station other than the concerned base station, and said controller sets the communication area and positional information of

the concerned base station on the basis of a result obtained by searching for the communicatable area of the other base station other than the concerned base station and the positional information of the other base station (see claim 11 of Kashiwagi et al.).

Consider **claim 36**, Kashiwagi et al. disclose an emitting station for a radio system also having at least one receiving station (A radio base station for wirelessly communicating with a radio terminal and communication means for connecting the concerned radio base station with a radio base station other than the concerned radio base station.) (see claim 9), comprising:

means for transmission of data to one of the at least one receiving station in a spatial radio area (an antenna for transmitting and receiving radio waves with a directivity) (see claim 9); and

means for broadcasting direction information revealing a spatial direction in which the emitting station provides for the transmission of data (a controller for changing the directivity of said antenna, detecting a state of radio waves transmitted by the other radio base station, and setting a communication area and positional information of the concerned base station on the basis of said radio waves state, wherein the concerned base station informs the other base station of the positional information of the concerned base station) (see claim 9).

However, Kashiwagi et al. fail to disclose at least one directional antenna for transmission of data, at least one omnidirectional antenna for broadcasts, and means

for transmission of data to one of the at least one receiving station in a spatial radio area using the at least one directional antenna.

In the related art, Velazquez et al. disclose each base station 20 consists of a transceiver 210, a directional antenna array 25' and associated beamformer hardware 24, control hardware 220, and a transmission link with a mobile telecommunications switching office (NTSO) 5 to route calls. The mobile unit 30 consists of handset 8 with a microphone and a speaker, a transceiver 310, a GPS receiver 350 (or other hardware to determine position of the mobile), and an omnidirectional antenna 35 or optionally a directional antenna array 35' and associated beamformer hardware 34 ([0059]) and a communication link between the base and mobile transceiver formed by a wireless signal between the antennas and a positioning system for detecting the geographical position of the mobile antenna, the position of the mobile antenna being communicated to the base transceiver over the communication link (see claim 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Velazquez et al. into the teachings of Kashiwagi et al. for the purpose of forming narrow antenna beams to and from desired users and way from undesired users to reduce co-channel interference.

Consider **claim 37**, Kashiwagi et al. disclose a radio system (station (A radio base station for wirelessly communicating with a radio terminal and communication means for connecting the concerned radio base station with a radio base station other than the concerned radio base station.) (see claim 9), comprising:

at least one receiving station (radio terminal); and

at least one emitting station (radio base station), including

means for transmission of data to one of the at least one receiving station in a spatial radio area (an antenna for transmitting and receiving radio waves with a directivity) (see claim 9); and

means for broadcasting direction information revealing a spatial direction in which the emitting station provides for the transmission of data.

However, Kashiwagi et al. fail to disclose at least one directional antenna for transmission of data, at least one omnidirectional antenna for broadcasts, and means for transmission of data to one of the at least one receiving station in a spatial radio area using the at least one directional antenna.

In the related art, Velazquez et al. disclose each base station 20 consists of a transceiver 210, a directional antenna array 25' and associated beamformer hardware 24, control hardware 220, and a transmission link with a mobile telecommunications switching office (NTSO) 5 to route calls. The mobile unit 30 consists of handset 8 with a microphone and a speaker, a transceiver 310, a GPS receiver 350 (or other hardware to determine position of the mobile), and an omnidirectional antenna 35 or optionally a directional antenna array 35' and associated beamformer hardware 34 ([0059]) and a communication link between the base and mobile transceiver formed by a wireless signal between the antennas and a positioning system for detecting the geographical position of the mobile antenna, the position of the mobile antenna being communicated to the base transceiver over the communication link (see claim 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Velazquez et al. into the teachings of Kashiwagi et al. for the purpose of forming narrow antenna beams to and from desired users and way from undesired users to reduce co-channel interference.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kashiwagi et al. (U.S. Patent Application Publication # 204/0242276 A1)** in view of **Dam (U.S. Patent # 6,223,040)**.

Consider **claim 33, as applied to claim 15 above**, Kashiwagi et al. disclose a method for operating a radio system with stations (communication means for connecting the concerned radio base station with a radio base station other than the concerned base station), including a first emitting station (radio base station) (see claim 9).

However, Kashiwagi et al. fail to disclose broadcasting from the first emitting station time interval information about a first time interval provided for transmission of data to the first receiving station.

In the related art, Dam discloses a cellular mobile radio system, co-channel radio base stations are provided with a time reference signal being a synchronizing signal or a time reference from another co-channel radio base station. Each co-channel radio base station is also provided with a radio base station specific time offset differing between the co-channel radio base station by at least a predetermined value (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Dam into the teachings of Kashiwagi et al. for the purpose of preventing known sequences in desired signals and

known sequences in interfering signals from overlapping in a disturbing way at reception.

Allowable Subject Matter

Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Consider **claim 17, as applied to claim 15 above**, the best prior art of record found during the examination of the present application, **Kashiwagi et al. (U.S. Patent Application Publication # 204/0242276 A1)** in view of **Velazquez et al. (U.S. Patent Application Publication # 2001/0003443 A1)**, Kashiwagi et al. disclose a radio base station for wirelessly communicating with a radio terminal comprising communication means for connecting the concerned radio base station with a radio base station other than the concerned base station, an antenna for transmitting and receiving radio waves with a directivity, detecting a state of radio waves transmitted by the other radio base station, and setting a communication area and positional information of the concerned base station on the basis of said radio wave state, wherein the concerned base station informs the other base station of the positional information of the concerned base station. Communication means receives the positional information of the other radio base station other than the concerned base station, and said controller sets the communication area and positional information of the concerned base station on the basis of a result obtained by searching for the communicatable area of the other base

station other than the concerned base station and the positional information of the other base station (see claims 9 and 11 of Kashiwagi et al.).

Velazquez et al. disclose each base station 20 consists of a transceiver 210, a directional antenna array 25' and associated beamformer hardware 24, control hardware 220, and a transmission link with a mobile telecommunications switching office (NTSO) 5 to route calls. The mobile unit 30 consists of handset 8 with a microphone and a speaker, a transceiver 310, a GPS receiver 350 (or other hardware to determine position of the mobile), and an omnidirectional antenna 35 or optionally a directional antenna array 35' and associated beamformer hardware 34 ([0059]) and a communication link between the base and mobile transceiver formed by a wireless signal between the antennas and a positioning system for detecting the geographical position of the mobile antenna, the position of the mobile antenna being communicated to the base transceiver over the communication link (see claim 39 of Velazquez et al.).

However, Kashiwagi et al. in view of Velazquez et al. fail to specifically disclose, teach or suggest wherein the second emitting station is equipped with a second directional antenna and provides for transmission of data to a second receiving station using the second directional antenna in a second spatial radio area, wherein said taking into account comprises checking, at the second emitting station based on the first direction information, whether the first and the second spatial radio area overlap at one of the receiving stations, and wherein said method further comprises transmitting data from the first and second emitting stations, only taking place at least partly

simultaneously if the first and the second spatial radio areas do not overlap at any receiving stations.

Therefore, **claim 17** of the present application is considered novel and non-obvious over the prior art and, consequently, is allowed.

Claims 18-32 are considered novel and non-obvious over the prior art and, consequently, are allowable because they are dependent on claim 17.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Redi; Jason Keith et al. (U.S. Patent # 6,816,115)

Velazquez; Scott R. et al. (U.S. Patent # 6,512,481)

Harbin; Steven Anthony et al. (U.S. Patent # 5,701,583)

Doi, Yoshiharu et al. (U.S. Patent Application Publication # 2004/0242187)

Dam; Henrik Revsbech (U.S. Patent # 6,223,040)

Hamilton; Bradley J. et al. (U.S. # 6,240,294)

Kelkar; Kris (U.S. Patent # 7,035,652)

Rodgers; William E. et al. (U.S. Patent # 7,065,373)

Taniguchi; Tsuyoshi et al. (U.S. Patent # 6,836,674)

Hirano; Jun et al. (U.S. Patent Application Publication # 2006/0079185)

Chung, Hee-Sok (U.S. Patent Application Publication # 2005/0048921)

Ofuji; Yoshiaki et al. (U.S. Patent # 7,136,624)

Kashiwagi; Kenji et al. (U.S. Patent # 7,107,012)

Corbett; Christopher J. et al. (U.S. Patent # 7,130,586)

Redi, Jason Keith et al. (U.S. Patent Application Publication # 2004/0152420)

Lappetelainen; Antti et al. (U.S. Patent # 6,671,495)

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to April S. Guzman whose telephone number is 571-270-1101. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April S. Guzman
A.S.G/asg

EDAN ORGAD
PATENT EXAMINER/TELECOMM.
12/8/06